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L2: Entry 6 of 8

File: DWPI

Dec 11, 1991

DERWENT-ACC-NO: 1991-362925

DERWENT-WEEK: 200131

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TITLE: Foamable metal body prodn. - by hot pressing or rolling of metal and propellant powder mixt.

INVENTOR: BAUMEISTER, J; SCHRADER, H

## PATENT-ASSIGNEE:

ASSIGNEE	CODE
FRAUNHOFER GES FOERDERUNG ANGEWANDTEN	FRAU
FRAUNHOFER-GES FORD ANGE	FRAU
FRAUNHOFER GES FOERDERUNG	FRAU

PRIORITY-DATA: 1991DE-4101630 (January 21, 1991), 1990DE-4018360 (June 8, 1990), 1991DE-4016300 (January 21, 1991)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 460392 A	December 11, 1991		000	
CA 2044120 C	May 1, 2001	E	000	B22F003/14
DE 4101630 A	December 12, 1991		000	
CA 2044120 A	December 9, 1991		000	
DE 4101630 C	April 16, 1992		007	
JP 04231403 A	August 20, 1992		007	B22F003/10
US 5151246 A	September 29, 1992		009	B22F001/00
EP 460392 B1	September 4, 1996	G	011	B22F003/10
DE 59108133 G	October 10, 1996		000	B22F003/10

DESIGNATED-STATES: AT BE CH DE DK ES FR GB GR IT LI LU NL SE AT BE CH DE DK ES FR GB GR IT LI LU NL SE

CITED-DOCUMENTS: 1. Jnl. Ref; GB 936912 ; US 3087807 ; GB 939612 ; SU 1129027

## APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
EP 460392A	April 26, 1991	1991EP-0106755	
CA 2044120C	June 7, 1991	1991CA-2044120	
DE 4101630A	January 21, 1991	1991DE-4016300	
DE 4101630C	January 21, 1991	1991DE-4101630	
JP 04231403A	June 6, 1991	1991JP-0134868	
US 5151246A	May 31, 1991	1991US-0708350	
EP 460392B1	April 26, 1991	1991EP-0106755	
DE 59108133G	April 26, 1991	1991DE-0508133	
DE 59108133G	April 26, 1991	1991EP-0106755	
DE 59108133G		EP 460392	Based on

INT-CL (IPC): B22F 1/00; B22F 3/10; B22F 3/14; B22F 3/18; B22F 5/00; C22C 1/08

RELATED-ACC-NO: 1991-157156

ABSTRACTED-PUB-NO: DE 4101630C

BASIC-ABSTRACT:

(A) a foamable metal body is produced by mixing metal powder(s) with gas-evolving propellant powder(s) and hot pressing to form a semi-finished product, the novelty being that hot pressing is carried out at a temp. at which metal particle bonding occurs mainly by diffusion and at a pressure sufficiently high to prevent propellant decompsn., the bonded metal particle forming a gas-tight enclosure for gas bubbles subsequently produced by the propellant. (B) In a similar process, the mixt. is subjected to hot rolling instead of hot pressing.

(C) Also claimed is one of the metal body, produced by the processes for prodn. of a porous metal body by heating to above the propellant decompsn. temp. and then cooling the resulting foamed body.

ADVANTAGE - The processes are simple and inexpensive, allow use of propellants with low decompsn. temp. and allow prodn. of bodies with (dis)continuously varying density over their cross-sections.

ABSTRACTED-PUB-NO:

EP 460392A

EQUIVALENT-ABSTRACTS:

Foamable metal body is mfd. from a metal powder and a gas-generating foaming agent, which are mixed and hot compacted at a temp. at which bonding between metal powder particles is primarily obtained by diffusion. Pressure is sufficiently high to prevent decompsn. of the foaming agent, which is enclosed by the bonded metal particles.

Pref. mixt., of Al and Ti hydride, can be compacted by rolling at 350-400 deg.C.

ADVANTAGE - Inexpensive, simple to use.

EP 460392B

Method of producing foamable metal bodies, wherein a mixture of at least one metal powder and at least one gas-eliminating foaming agent powder is prepared and hot-compacted so as to form a semi-finished product, characterized in that said hot-compacting operation takes place at a temperature higher than the decomposition temperature of said foaming agent, with the particles of said metal powder being predominantly linked by diffusion and at a pressure sufficiently high for preventing said foaming agent from decomposing, such that the metal particles are fixedly linked to each other and constitute a gas-tight seal for the gas particles of said foaming agent.

US 5151246A

Mixt. composed of at least one metal powder and at least one gas splitting propellant powder is produced and hot compacted to a semi-finished prod., by hot compacting mixt. at temp. at which joining of metal powder particles takes place. Joining takes place primarily through diffusion and at pressure sufficiently high to hinder decomposition of propellant.

Metal particles are permanently bonded to one another. A gas tight seal is formed for the gas particles of the propellant. Heat and pressure are removed from the metal body. The metal body is heated to temp. above decomposition temp. of propellant to form the metal body. The metal body is then cooled.

USE/ADVANTAGE - Used for mfg. porous metal body. Two step process entailing high degree of conversion, limited to semi-finished extended prods. is not required.

CHOSEN-DRAWING: Dwg.0/3 Dwg.1/3 Dwg.3/3

TITLE-TERMS: FOAM METAL BODY PRODUCE HOT PRESS ROLL METAL PROPELLANT POWDER MIXTURE

DERWENT-CLASS: M21 M22 P53

CPI-CODES: M22-H02; M22-H03C;

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C1991-156331

Non-CPI Secondary Accession Numbers: N1991-278011

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*applicant  
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L1: Entry 3 of 5

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